REMARKS

In view of the following remarks, Applicant respectfully requests reconsideration and allowance of the subject application. This amendment is believed to be fully responsive to all issues raised in the May 19, 2005 Office Action.

Amendments to the Claims

Claims 1-5, 8, 10, 11, 21-25, 28, 29, 31-34, 36-38, 42, 48, 50-52, 54-57, 60-65, 70-73, and 77-79 are amended and claims 9, 26, 27, 58, and 59 are cancelled. Claim 54 is amended to correct minor typographical errors. Claims 1-5, 8, 10, 11, 21-25, 28, 29, 31-34, 36-38, 42, 48, 50-52, 55-57, 60-65, 70-73, and 77-79 are amended to more distinctly define the claimed subject matter.

Rejections to the Claims

35 U.S.C. 103(a)

Claims 1-9, 12-30, and 35-81 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Number 6,553,072 issued to Chiang et al. (herein referred to as "Chiang"), in view of U.S. Patent Number 5,235,420 issued to Gharavi (herein referred to as "Gharavi").

The applicant describes encoding a source image using a layered coding technique that generates multiple layers with different aspect ratios. A base layer has one aspect ratio and represents a low-resolution portion of the source

image and an enhancement layer has a different aspect ratio and represents a high-resolution portion of the source image. The applicant gives an example in which the high-resolution source image has a 4:3 aspect ratio, an encoded low-resolution base layer has a 4:3 aspect ratio, and an encoded high-resolution enhancement layer has a 16:9 aspect ratio. The base layer, when decoded, is compatible for display via a standard television having a 4:3 aspect ratio; and the enhancement layer, when decoded, can be combined with at least a portion of the decoded base layer for display via a high-definition television (HDTV) having a 16:9 aspect ratio.

Applicant's application also describes decoding the encoded layers to generate displayable images. For example, the base layer may have an aspect ratio of 4:3 and when decoded, may be suitable for display by a conventional (low-resolution) television. The enhancement layer may have, for example, an aspect ratio of 16:9. The enhancement layer represents a high-resolution portion of the source image. When decoded, the enhancement layer may be combined with at least a portion of the decoded low-resolution base layer to create an image that is suitable for display by a high-definition television.

Specifically, claim 1, as amended, recites a method of encoding a high-resolution source image having a first aspect ratio, the method comprising:

> generating a base layer representing a low-resolution portion of the source image, wherein the base layer has the first aspect ratio; and

generating an enhancement layer representing a high-resolution portion of the source image, wherein the enhancement layer has a second aspect ratio, and wherein the second aspect ratio differs from the first aspect ratio.

The combination of Chiang and Gharavi does not teach or suggest generating a low-resolution base layer having the same aspect ratio as the source image and generating a high-resolution enhancement layer having a different aspect ratio.

Chiang teaches a dynamically configurable video signal processing system for encoding and decoding data in the form of hierarchical layers. The image resolution and corresponding number of pixels per image of data may be varied as a function of system parameters. (*Chiang*, Abstract.) Chiang teaches that each encoded layer has the same aspect ratio as the original input video signal. (*Chiang*, column 3, lines 4-8.)

Gharavi teaches a video coder that codes the digital pel values of a video signal in such a manner that different levels of picture quality are available to users. A user subscribing to increasing numbers of signal layers is able to reconstruct signals of increasing quality. (*Gharavi*, Abstract.) Gharavi teaches that a low resolution base layer may be generated to have a different aspect ratio than the input video signal (*Gharavi*, column 3, lines 42-47; column 4 line 66 – column 5, line 4; and column 5, lines 24-28.), but Gharavi teaches that the higher resolution images that can be decoded from the base layer and

one or more enhancement layers have the same aspect ratio as the input video signal. (*Gharavi*, column 5, line 61 – column 6, line 4.)

The combination of Chiang and Gharavi does not teach or suggest encoding a high-resolution ***source image having a first aspect ratio***, resulting in "a base layer representing a low-resolution portion of the source image, wherein ***the base layer has the first aspect ratio,"*** and "an enhancement layer representing a high-resolution portion of the source image, wherein ***the enhancement layer has a second aspect ratio***, and wherein the second aspect ratio differs from the first aspect ratio," as recited in claim 1. Accordingly, claim 1 is allowable over the combination of Chiang and Gharavi.

Claims 2-8, 12-20, and 76-77 are allowable at least by virtue of their dependence on claim 1. Furthermore, one or more of claims 2-9 and 12-20 may also be allowable for independent reasons. For example:

Claim 8, as amended, recites a method as recited in claim 1 wherein the step of generating an enhancement layer comprises:

> determining an offset value;
>
> extracting a first image from the base layer based on the offset value, wherein the first image has the second aspect ratio, and wherein the first image is less than the entire image represented by the base layer;

extracting a second image from the source image based on the offset value, wherein the second image also has the second aspect ratio, and wherein the second image is less than the entire image represented by the source image; and

subtracting the first image from the second image.

Neither Chiang nor Gharavi, alone nor in combination, teach or suggest "extracting a first image from the base layer..., wherein the first image has the second aspect ratio, and wherein the first image is less than the entire image represented by the base layer; extracting a second image from the source image..., wherein the second image also has the second aspect ratio, and wherein the second image is less than the entire image represented by the source image," as recited in claim 8.

The Office contends that the prior art of record teaches generating an enhancement layer by subtracting a base layer from a source image. However, claim 8, as amended, further specifies that the enhancement layer is generated by subtracting an image extracted from the base layer from an image extracted from the source layer, wherein the extracted images are less than the entire images represented by the base layer and source image, respectively. Such image extraction is not taught or suggested by the combination of Chiang and Gharavi. Accordingly, and by virtue of its dependence on claim 1, claim 8 is allowable over the combination of Chiang and Gharavi.

As another example, claim 16 recites a method as recited in claim 1 further including transmitting the base layer to an image decoding system using a first transmission medium and transmitting the enhancement layer to the image decoding system using a second transmission medium.

Similarly, claim 17 recites a method as recited in claim 1 further including transmitting the base layer to an image decoding system using a first transmission format and transmitting the enhancement layer to the image decoding system using a second transmission format.

Neither Chiang nor Gharavi, alone nor in combination, teach or suggest "transmitting the base layer...using a first transmission medium and transmitting the enhancement layer...using a second transmission medium," as recited in claim 16 or "transmitting the base layer...using a first transmission format and transmitting the enhancement layer...using a second transmission format," as recited in claim 17.

The Office cites Chiang fig. 6, transmission of SDTV and HDTV and formatter 110; and Gharavi, figs. 1 and 6, transmission of different layers as teaching the claimed elements. (*Office Action*, page 5.) Applicant respectfully disagrees with this interpretation of Chiang and Gharavi. Specifically, Chiang, fig. 6 illustrates data being transmitted from formatter 110 to transport processor 115. Nothing in fig. 6 indicates that the base layer and enhancement layer are transmitted using different transmission mediums or different transmission

formats. Gharavi, figs 1 and 6 illustrate transmission of multiple layers, but figs. 1 and 6 do not indicate that the base layer and enhancement layer are transmitted using different transmission mediums or different transmission formats. Accordingly, and by virtue of their dependence on claim 1, claims 16 and 17 are allowable over Chiang in view of Gharavi.

With regard to claims 21, 50, 65, and 73, the Office states that "the limitations claimed are substantially similar to claim 1, and are the reverse process (decoding), therefore the ground for rejecting claim 1 also applies here." (*Office Action*, page 4.) As stated above with reference to claim 1, the combination of Chiang and Gharavi does not teach or suggest a low-resolution base layer having the same aspect ratio as the source image and a high-resolution enhancement layer having a different aspect ratio. Accordingly, for the same reasons stated above with reference to claim 1, claims 21, 50, 65, and 73 are allowable over the combination of Chiang and Gharavi.

Claims 22-25, 28-30, 35, 51-54, 66-69, 74-75, 78-79, and 81 are allowable by virtue of their respective dependence on claims 21, 50, 65, and 70.

With regard to claims 36 and 42, the Office states that "the limitations claimed are substantially similar to claim 1; therefore the grounds for rejecting claim 1 also applies here." (*Office Action*, page 5.) As stated above with reference to claim 1, the combination of Chiang and Gharavi does not teach or suggest a low-resolution base layer having the same aspect ratio as the source image and a high-resolution enhancement layer having a different aspect ratio. Accordingly, claim 36 is allowable over the combination of Chiang and Gharavi.

Claims 37-41, 43-49, and 80 are allowable by virtue of their respective dependence on claims 36 and 42.

With regard to claim 55, the Office states that "the limitations claimed are substantially similar to claims 1 and 20." (*Office Action*, page 6.) As stated above with reference to claim 1, the combination of Chiang and Gharavi does not teach or suggest a low-resolution base layer having the same aspect ratio as the source image and a high-resolution enhancement layer having a different aspect ratio. Accordingly, claim 55 is allowable over the combination of Chiang and Gharavi.

Claims 56-57, 60-64 are allowable by virtue of their dependence on claim 55.

Claim 70 is allowable based on similar reasoning as that described previously in relation to claim 1. Furthermore, the Office has rejected claim 70 for the same reasons given for the rejection of claim 1. (*Office Action*, page 2.) As stated above with reference to claim 1, the combination of Chiang and Gharavi does not teach or suggest a low-resolution base layer having the same aspect ratio as the source image and a high-resolution enhancement layer having a different aspect ratio. Accordingly, claim 70 is allowable over the combination of Chiang and Gharavi.

Claims 71-72 are allowable by virtue of their dependence on claim 70.

Claims 10, 11, 33, and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chiang and Gharavi as applied to the above claims, further in view of U.S. Patent Number 6,414,991 issued to Yagasaki et al (herein referred to as "Yagasaki").

Yagasaki is directed to image encoding, decoding, and transmission where dynamic image data is recorded on storage media and also regenerated and displayed on a display, or in the case where dynamic image data is transmitted from a transmitter side to a receiver side through a transmission path and, on the receiver side, the received dynamic image data is displayed or edited and recorded, as in video-conference systems, videophone systems,

broadcasting equipment, and multimedia data base retrieval systems. (*Yagasaki*, column 1, lines 11-25.)

Claims 10 and 11 depend from claim 8, which depends from claim 1. Yagasaki does not add anything to the teachings of Chiang and Gharavi as applied to claims 1 and 8. That is, Yagasaki does not teach or suggest encoding image data into a base layer and an enhancement layer where the base layer and the source image have a first aspect ratio and the enhancement layer has a different aspect ratio; nor does Yagasaki teach or suggest generating an enhancement layer by subtracting an image extracted from a base layer from a corresponding image extracted from the source image.

Furthermore, the Office cites Yagasaki, fig. 5, FPOS as teaching the claimed offset value. (*Office Action*, page 7.) Applicant respectfully disagrees. While fig. 5 does include several elements labeled "FPOS", there is no indication in fig. 5 as to what the meaning of the FPOS elements is. Yagasaki, column 11, lines 18-20 states that, "the offset data indicates the position of a base or enhancement layer in a predetermined absolute coordinate system of the VOP" (video object plane). There is no suggestion that an offset value indicates a "location from which the first image is extracted from the base layer," as recited in claims 10 and 11. Accordingly, and by virtue their dependency on claims 1 and 8, claims 10 and 11 are therefore allowable over Chiang and Gharavi in view of Yagasaki.

Regarding claims 33 and 34, as discussed above, the combination of Chiang and Gharavi does not teach or suggest the elements of claim 21. Furthermore, Yagasaki does not add anything to the teachings of Chiang and Gharavi with regard to claim 21.

Claim 33 recites a method as recited in claim 21 wherein the base layer is received at a first time and the enhancement layer is received at a second time.

Similarly, claim 34 recites a method as recited in claim 21 wherein the base layer is received from a fist media and the enhancement layer is received from a second media.

The Office cites Yagasaki, figs. 5 and 15; and column 14, lines 40+ as teaching the elements recited in claims 33 and 34. (*Office Action*, page 7.) Applicant respectfully disagrees with this interpretation of Yagasaki. Yagasaki fig. 5 shows generation of a single bitstream, and Yagasaki fig. 15 shows receipt of a single bitstream. Yagasaki, column 14, lines 40+ describes the order in which various components are processed to generate an image. None of the cited portions of Yagasaki teach receiving a base layer and an enhancement layer at different times, as recited in claim 33. Furthermore, none of the cited portions of Yagasaki teach receiving a base layer and an enhancement layer from different media, as recited in claim 34. Accordingly, for these reasons and by virtue of their dependence on claim 21, claims 33 and 34 are allowable over Chiang and Gharavi in view of Yagasaki.

Claim 31 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chiang and Gharavi as applied to the above claims in view of U.S. Patent Number 6,061,719 issued to Bendinelli et al (herein referred to as "Bendinelli").

Bendinelli describes a system in which URLs are transmitted with television signals in order to permit web content to be displayed in synchronization with television programming. (*Bendinelli*, Abstract.) Bendinelli does not teach or suggest any sort of video data encoding or decoding, and specifically does not teach encoding or decoding video data in which a base layer has an aspect ratio and an enhancement layer has another aspect ratio.

Claim 31 depends from claim 21. As discussed above, the combination of Chiang and Gharavi does not teach or suggest the elements of claim 21. Furthermore, Bendinelli does not add anything to the teachings of Chiang and Gharavi with regard to claim 21. Accordingly, by virtue of its dependence on claim 21, claim 31 is allowable over Chiang and Gharavi in view of Bendinelli.

Claim 32 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chiang and Gharavi, and further in view of U.S. Patent Number 6,317,171 issued to Dewald (herein referred to as "Dewald").

Dewald is directed to a television receiver having a spatial light modulator and a projection lens that projects images to a screen. If the aspect

ratio of the image to be displayed does not match that of the spatial light modulator, an anamorphic lens is used to generate an image that is anamorphically squeezed so that the viewer perceives a normal wide-screen image on the screen. (*Dewald*, Abstract.)

Claim 32 recites:

> A method as recited in claim 21 further including correcting an anamorphic squeeze in the base layer.

Dewald specifically states that the anamorphic lens "generates an image that is anamophically squeezed" – that is, Dewald teaches ***applying*** an anamorphic squeeze, not ***correcting*** an anamorphic squeeze, as claimed. This distinction was pointed out in the previous amendment, dated November 4, 2004. The Office has not addressed Applicant's previous arguments with regard to the teachings of Dewald.

Furthermore, claim 32 depends from claim 21, and as described above, the combination of Chiang and Gharavi does not teach or suggest the elements of claim 21. Dewald does not correct the defects of Chiang and Gharavi with regard to claim 21. Accordingly, for the reason stated above, and its dependence on claim 21, claim 32 is therefore allowable over Chiang and Gharavi in view of Dewald.

Conclusion

Claims 1-8, 10-25, 28-57, and 60-81 are believed to be in condition for allowance. Applicant respectfully requests reconsideration and prompt issuance of the present application. Should any issue remain that prevents immediate issuance of the application, the Examiner is encouraged to contact the undersigned agent to discuss the unresolved issue.

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